

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GLENN RESEARCH CENTER
AND AEROJET ROCKETDYNE, INC.
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. SAA3-1639, DATED 11/18/2019 (ANNEX NUMBER 05).

ARTICLE 1. PURPOSE

Under this Annex, the National Aeronautics and Space Administration (“NASA”) Glenn Research Center (“GRC”) will perform environmental testing on the Advanced Electric Propulsion System (“AEPS”) Power Processing Unit (“PPU”) hardware supplied by Aerojet Rocketdyne, Inc. (“Partner” or “Aerojet”). This activity is consistent with the purpose set forth in Article 2 of the Space Act Umbrella Agreement (No. SAA3-1639) between the Parties (the “Umbrella Agreement”) for the Partner to develop, build, and test aerospace components using NASA GRC’s goods, services, facilities, and/or equipment to advance Aerojet’s interests; the AEPS PPU is a piece of sophisticated aerospace technology that will be tested for Aerojet’s benefit using NASA GRC’s unique facilities and expertise. This activity is also consistent with NASA’s mission in that it will help facilitate in general the advancement of PPU technology, which is anticipated to be used in future NASA endeavors as the Agency pursues higher power electric propulsion missions.

ARTICLE 2. RESPONSIBILITIES

A. NASA GRC will use reasonable efforts to:

1. Coordinate facility support for testing, which will include vibration testing in the Structural Dynamics Laboratory (SDL) and thermal vacuum testing in VF-18.
2. Review and approve test plans and procedures.
3. Transport PPU between GRC facilities.
4. Run facility during testing.
5. Provide data and reports from testing.
6. Ship PPU back to Aerojet.

B. Aerojet will use reasonable efforts to:

1. Provide engineering support personnel for test hardware.
2. Develop test plan and procedures and provide them to NASA GRC reasonably in advance of the testing activity.
3. Deliver test hardware to NASA GRC.
4. Perform functional testing before, during, and after NASA GRC tests.
5. Accept the risk of delays to the schedule and other potential unforeseen circumstances due to COVID-19 and related issues. Aerojet acknowledges and understands that while

NASA will attempt to accommodate staff for in-person test participation, COVID-19 related issues may require virtual participation.

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones and estimated schedule for the activities defined in the "Responsibilities" Article are identified below. The current circumstances related to the COVID-19 pandemic may significantly impact the schedule and milestones of this Annex No. 05 and dates are therefore subject to a considerable degree of variability. The Parties may utilize a separate document labeled as "Appendix A: Schedule Coordination Matrix" ("Appendix") to coordinate possible changes to the Annex No. 05 schedule. The Appendix is utilized only for Annex performance planning purposes and the terms and conditions of the Umbrella Agreement control. Any change to schedule identified in the Appendix must be signed or approved by the applicable Management Points of Contact or Technical Points of Contact for the respective Parties, as appropriate. The dates included in the aforementioned Appendix are the best approximation at the time Annex No. 05 was created and may be amended.

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| 1. Partner to deliver test hardware and draft test plan and procedure to NASA GRC. | SEE APPENDIX A. |
| 2. NASA GRC to review and approve test plan and procedure. | SEE APPENDIX A. |
| 3. NASA GRC to complete vibration testing. | SEE APPENDIX A. |
| 4. NASA GRC to complete thermal vacuum testing. | SEE APPENDIX A. |
| 5. NASA GRC to ship PPU back to Partner. | SEE APPENDIX A. |
| 6. NASA GRC to deliver test results to Partner. | SEE APPENDIX A. |

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$198,958 for NASA to carry out its responsibilities under this Annex. Each payment shall be marked with "GRC and Annex No. 05 to SAA3-1639."

B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within 150 calendar days after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent

funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement. Return of unspent funds will be processed via Electronic Funds Transfer (EFT) in accordance with 31 C.F.R. Part 208 and, upon request by NASA, Partner agrees to complete the Automated Clearing House (ACH) Vendor/Miscellaneous Payment Enrollment Form (SF 3881).

ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of one year.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data:

The Disclosing Party's Background Data, if any, will be identified in a separate technical document.

2. Third Party Proprietary Data:

The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate technical document.

3. Controlled Government Data:

The Disclosing Party's Controlled Government Data, if any, will be identified in a separate technical document.

4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement: None.

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or sixteen (16) months from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Management Points of Contact

NASA

Randall Furnas
Division Chief
Mail Stop: 301-3
21000 Brookpark Road
Cleveland, OH 44135
Phone: 216-433-2321
Fax: 216-433-2306
randall.b.furnas@nasa.gov

Aerojet Rocketdyne, Inc.

Jerry Jackson
Program Manager
8900 De Soto Ave.
Canoga Park, CA 91304-1967 Phone: 818-
586-7517
Jerry.Jackson@rocket.com

Technical Points of Contact

NASA

Kristen Boomer
Electrical Engineer
Mail Suite: 301-5
21000 Brookpark Road
Cleveland, OH 44135
Phone: 216-433-3776
Fax: 216-433-2306
kristen.t.boomer@nasa.gov

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Program Manager
8900 De Soto Ave.
Canoga Park, CA 91304-1967 Phone: 818-
586-7517
Jerry.Jackson@rocket.com

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
GLENN RESEARCH CENTER

AEROJET ROCKETDYNE, INC.

BY: _____
Marla E. Pérez-Davis, Ph.D.
Center Director

BY: _____
Bonnie Barnum
Contracts Administrator

DATE: _____

DATE: _____